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Cuscuta campestris Yunck (Convolvulaceae) as naturalized plant in Madeira Island (Portugal)

With 1 figure

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ABSTRACT: *Cuscuta campestris* Yunck (Convolvulaceae) is reported for the first time as naturalized in the island of Madeira (Portugal). This plant was found parasitizing the natives *Foeniculum vulgare* Mill. and *Bituminaria bituminosa* (L.) C. H. Stirt., fully flowering and fructifying. This North American dodder, already spread in many parts of the world, can prove to be not only a problem for several native and endemic plants, including many Fabaceae, but also an agricultural problem since its ability to parasitize many cultures is well known.

Keywords: Field-dodder, dodders, parasitic herbs.

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RESUMO: *Cuscuta campestris* Yunck (Convolvulaceae) é relatada pela primeira vez como naturalizada na ilha da Madeira (Portugal). Esta planta foi encontrada em floração e frutificação, parasitando as espécies nativas *Foeniculum vulgare* Mill. e *Bituminaria bituminosa* (L.) C. H. Stirt.. Esta cuscuta norte-americana, já dispersa em muitas partes do mundo, pode revelar-se não só um problema para várias plantas nativas e endêmicas, incluindo muitas Fabaceae, mas também um problema agrícola, uma vez que sua capacidade de parasitar muitas culturas é bem conhecida.

Palavras-chave: linho de cuco, enleios, plantas parasitas.

INTRODUCTION

The genus *Cuscuta* L. (Convolvulaceae) includes about 160 species with worldwide distribution (MABBERLY, 2008; GARCIA, 2012). For the Iberian Peninsula nine species were referred by GARCIA (2012), and the Portuguese flora includes eight *taxa*, being two of them present in the Madeira archipelago, and none in the Azorean islands (MENEZES DE SEQUEIRA *et al.*, 2012). According to JARDIM & MENEZES DE SEQUEIRA (2008) the genus *Cuscuta* L. was, until now, represented in Madeira by two native *taxa*, namely *C. epythymum* (L.) L., recorded as occurring in Madeira, Porto Santo and Selvagens; and *C. planiflora* Ten. assigned to Madeira and Porto Santo. Both *C. approximata* Bab. subsp. *episonchum* (Webb & Berthel.) Feinbrun referred by TURLAND (1994) as being present in Porto Santo, and *C. calycina* Webb formerly recognized by LOWE (1872) and later by MENEZES (1914) are currently included in *C. planiflora* Ten. (GARCIA, 2012).

The Madeira archipelago flora includes a growing number of non-native and invasive species. The checklist of the Madeira Island flora (JARDIM & MENEZES DE SEQUEIRA, 2008) contained 391 non-native *taxa*, however, recent findings added more 27 naturalized *taxa* (SILVA *et al.*, 2008, 2009; JÄSCHKE, 2010; FERREIRA *et al.*, 2011; PUPO-CORREIA & MENEZES DE SEQUEIRA, 2014; BENEDITO & MENEZES DE SEQUEIRA, 2014; JARDIM & MENEZES DE SEQUEIRA, 2015 ; GONÇALVES SILVA & PAZ, 2016; GONÇALVES SILVA & FERREIRA, 2019, 2020; CABRAL *et al.*, 2020; FERREIRA *et al.*, 2020; JARDIM & MENEZES DE SEQUEIRA, 2021) and many more will be added in the near future.

MATERIAL AND METHODS

Specimens were identified based on GARCIA (2012) and SPAULDING (2013) and deposited in the Herbarium of the University of Madeira.

Studied material

Portugal, Madeira: Porto Novo, on a slope, alt. ca. 64 m, 08-V-2017, Aida Pupo-Correia, AP623A, UMad.

RESULTS

Recent collections of *Cuscuta* specimens from Porto Novo, in the Southeast of Madeira Island, were identified as *C. campestris* Yunck, a native plant from North America (GARCIA, 2012). Plants exhibit bright orange string-like stems, much-branched, voluble, twining around the host plant. Inflorescences are sessile and bracteate, composed of flower-clusters corresponding to somewhat lax compound cymes (Fig. 1 a). The cymules are shortly pedunculated bearing 2-4 flowers, 5-merous and shortly pedicellate. The calyx is about as long as the corolla tube, cupuliform, lacking prominent angles at the base, with reticulated surface, and obtuse lobes. The corolla whitish, nearly translucent, urceolate, exhibiting deltoid-ovate lobes with acute inflexed tips, and is persisting at the base of the fruit. Infrastaminal scales are longer than corolla-tube and have large fimbriae. Stamens (5) alternating with corolla-lobes, partially included in the corolla-tube; with conoidal filaments and ovate bright yellow anthers. The ovary is almost spherical, glabrous; with two free cylindrical styles, the stigmata are subglobose and ochre-orange (Fig. 1 b). The fruit is a globose capsule, with a deep depression at the apex between the two styles, glabrous, indehiscent, generally with 3 seeds, orange, subglobose, one side-depressed, and rough-surfaced (Fig. 1 c).

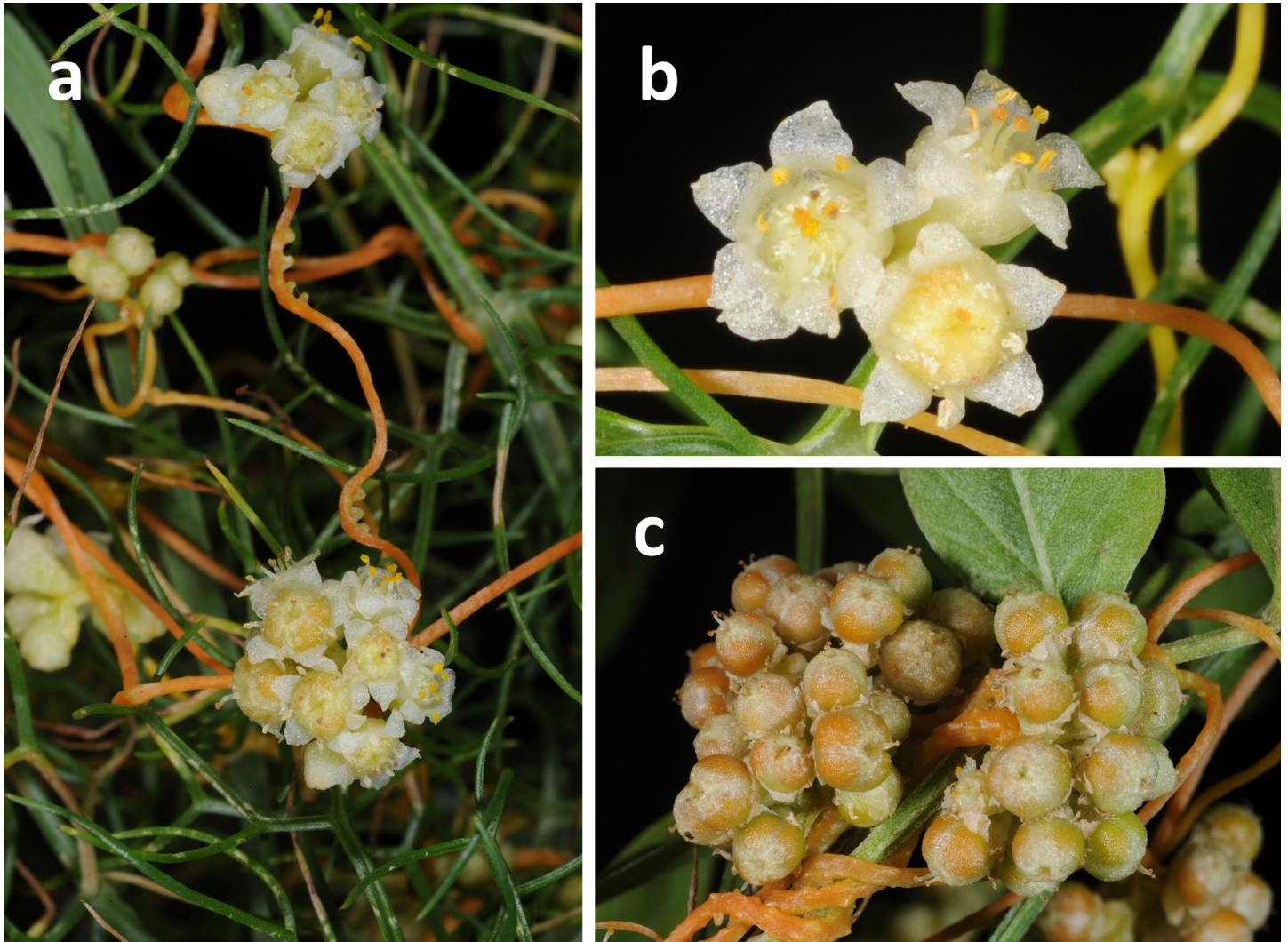


Fig. 1 – *Cuscuta campestris* Yunk: **a)** general aspect; **b)** flowers; **c)** fruits.

DISCUSSION

Cuscuta campestris is repeatedly confounded and grouped with the very similar *C. pentagona* Engelman; the latter species, however, has prominent angles at the base of calyx lobes allowing them to be distinguished without confusion SPAULDING (2013). *C. campestris* has also been misidentified as *C. gronovii* Willd. ex Schult., a species also belonging to the subgenus *Grammica* (Lour.) Yunk. (GARCIA, 2012), with which there is little or no possibility of confusion, since *C. gronovii* has corolla lobes mostly obtuse and straight at tip, and a stylopodium at the apex of the capsule (SPAULDING, 2013).

Cuscuta campestris is currently naturalized all over the world, occurring mainly in disturbed areas, such as roadsides and agricultural terraces, parasitizing predominantly herbaceous plants and, more commonly, plants of the Fabaceae family (GARCIA, 2012; SPAULDING, 2013). The oldest reference for Europe dates back to the early twentieth century (GARCIA, 2012). Its introduction in the Iberian Peninsula was reported for the first time by PINTO DA SILVA (1968) in Portugal mainland, as being introduced by means of contaminated seeds, especially *Medicago sativa* L. for forage production. In Madeira, it was found fully naturalized smothering several individuals of *Foeniculum vulgare* Mill. (Fig. 1 a, b) and *Bituminaria bituminosa* (L.) C. H. Stirt. (Fig. 1 c) in rocky areas of the *Euphorbietum piscatoriae* community at Porto Novo. Considering that the closest farmland terraces have been uncultivated for over 50 years (PUPO-CORREIA, 2015) it must be a recent introduction in the area, possibly linked to the use of hydroseeding of road embankments. The presence of this plant in this location, moderately distant from gardens and agricultural plots, further supports the dispersal ability and

adaptation capacity of this species, as referred by GARCIA (2012). Although presently *C. campestris* does not seem to be parasitizing endemic *taxa* (it was found on two quite common native species), it could present a threat to several rare native / endemic *taxa* belonging to the Fabaceae family, namely *Lotus argyroides* R. P. Murray, *Lotus glaucus* Aiton., *Lotus macranthus* Lowe, *Teline maderensis* Webb & Berthel., *Teline paivae* (Lowe) P. E. Gibbs & Dingwall, among many others.

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